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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/534,942	02/06/2006	Adolf Gustav Zajber	HM-648PCT	1669

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FRIEDRICH KUEFFNER
317 MADISON AVENUE, SUITE 910
NEW YORK, NY 10017

EXAMINER	
LIN, KUANG Y	

ART UNIT	PAPER NUMBER
1793	

MAIL DATE	DELIVERY MODE
04/10/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/534,942	ZAJBER ET AL.	
	Examiner	Art Unit	
	Kuang Y. Lin	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 January 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 4-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 4-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 January 2008* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

1. The specification is objected to under 35 USC 112, 1st paragraph in that the disclosure is written in a non-idiomatic expression such that renders the meaning vague and indefinite. For example, in page 2, line 16+ and page 7, line 1+, respectively, (amended), in what manner "the geometrical **shape of inner cross-section** and the corresponding **dimensions** are set analogous to the locally deducible quantity of solidification heat"? In page 4, line 21 (amended), the recess is formed in the mold, rather than in the casting. Also, the degree of recession decreases in the direction toward the casting exit side, rather than stated otherwise. Further, since the mold disclosed is in the rectangular shape, it is not clear what "narrow side is referred to. In page 5, line 11+, and page 8, line 21+, respectively, (amended), what is the "plane-parallel surface"? In page 7, line 8 (amended) and page 7, line 13 (original), respectively, it refers to "the exterior **form** 12" and the geometrical cross-section **form**". It is not clear what "form" is referred to, i.e., does it refers to "thickness", "dimension" or something else? In page 8, line 15 + (amended), the recess is adapted to an amount of contraction **along the height** of the mold, rather than "**of the height**" of the mold. In page 8, line 21+ (amended), what is the meaning of "plane-parallel"?

2. Claims 1 and 4-8 are rejected under 35 USC 112, 1st paragraph for the same reasons as set forth in the objected to the specification supra.

3. Claims 1, and 4-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

These claim are written in a narrative format rather than an objective format and thereby they do not positively and directly include all the structural elements which are referred thereto, i.e. the shape or configuration of the mold is described in turn of the heat removing condition during casting process which is extraneous to the structure of the casting mold. In claim 1, the expression of "particularly molten steel" renders indefinite in scope of the claim. Also, what is "preliminary section castings"? and what is "curve representing **temperature progression**" and "curve representing heat dissipation"? Does it means "temperature profile", and "the amount of heat dissipation", respectively? It is noted that in page 6, last paragraph of the specification, it states that diagram "D" shows the process during the dissipation of solidification heat from the casting. It is not clear how the diagram "D" shows the process during dissipation of solidification heat. In claim 7, how the length of the recess can corresponds to the amount of contraction? Also, what narrow side is referred to? In claim 8, it is written in a non-idiomatic manner such that it is not clear what mold structure is claimed.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1 and 8 **insofar as definite** are rejected under 35 U.S.C. 103(a) as being unpatentable over either US 6,340,048 to Tsune et al., or US 4,207,941 to Shrum and further in view of US 5,467,809 to Arvedi et al.

Each of the primary references substantially shows the invention as claimed except that they do not show to reduce the mold wall volume by means of notches. However, Arvedi et al. show to provide notches on the exterior of the mold wall such that to provide more coolant contacting surface and thereby to speed up the heat removal process. It would have been obvious to provide the notches of Arvedi et al. in the mold wall of the primary references in view of the advantage. Applicant is advised that the language of "locally deducible quantity of the solidification heat for the continuous casting", "progress of the temperature diagram across the mold height", "the dissipated heat quantity per time unit", etc. do not further provide any structural limitation for the continuous casting mold as claimed.

7. Claims 4-7 **insofar as definite** are rejected under 35 U.S.C. 103(a) as being unpatentable over either US 6,340,048 to Tsune et al., or US 4,207,941 to Shrum in

view of US 5,467,809 to Arvedi et al. as applied to claim 1 above, and further in view of US 5,343,931 to Striuli et al. or JP 6-31,401.

Striuli et al. show a continuous casting mold containing a substantially central, approximately parabola-shaped recess for reducing of the concentration of tensions in the strand skin and lessening of tendency to tearing of strand skin during strand withdrawal process. JP '401 shows to provide an outward bulging at each side of mold plate to prevent the damage of the solidified shell. It would have been obvious to further provide the continuous casting mold of the primary references with the central, approximately parabola-shaped recess of the secondary references in view of the advantage.

8. Applicant's arguments filed Jan. 23, 2008 have been fully considered but they are not persuasive.

> Applicant's main argument is in that the cited prior art references do not teach the continuous casting mold having an inner geometrical cross-section form and associated dimensions that are designed analogous to a locally deducible quantity of a solidification heat for the continuous casting according to a temperature profile along the mold height. However, those limitations are directed to process of making a mold and thus do not define over the prior art reference. Since the modified shape or configuration of the continuous casting mold of the primary reference in view of the secondary reference is resemble or similar to that of instant application, **the mold as claimed** does not define over the prior art reference.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kuang Y. Lin whose telephone number is 571-272-1179. The examiner can normally be reached on Monday-Friday, 10:00-6:30,.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy V. King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kuang Y. Lin/
Primary Examiner, Art Unit 1793

4-9-08